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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/636,078	08/07/2003	Gregory S. Helwig	25334A	9843
22889	7590	12/08/2006	EXAMINER	
OWENS CORNING 2790 COLUMBUS ROAD GRANVILLE, OH 43023			TORRES VELAZQUEZ, NORCA LIZ	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/636,078

Applicant(s)

HELWIG, GREGORY S.

Examiner

Norca L. Torres-Velazquez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-25 and 37-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-25 and 37-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102/103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 3-17, 20-25 and 37-48 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over CHENOWETH et al. (US 4,889,764).**

CHENOWETH et al. discloses a nonwoven matrix of mineral fibers (glass fibers) and synthetic fibers. The synthetic fibers are of two types: first, solid or *hollow* homogeneous synthetic fibers such as *polyester*, rayon, acrylic, vinyl, *nylon*, Kevlar®, or similar synthetic materials. The second type of fibers is bi-component core and sheath fibers of materials, typically polyesters, having distinct melting points. The bicomponent synthetic fibers include an outer low melting temperature sheath and a higher melting temperature core. (Abstract; Col. 2, lines 51-60) The glass fibers have diameters of three to ten microns. (Col. 2, lines 67-68; Col. 4, lines 42-43) The reference teaches that the synthetic, second fibers 14, range from 5 to 15 denier and one to four inches in length, therefore, providing more loft to the product. (Col. 5, lines 1-5) The fibers 14 may be either straight or *crimped*, the crimped providing more loft and less density to the final product in comparison to the straight fibers. The fibers 14 may also be hollow. (Col. 5, lines 8-13) CHENOWETH et al. further teaches that the bicomponent synthetic fibers 16 include a core of regular melt homopolymer polyester. The core 18 is fully

surrounded by a sheath 20 of low melt temperature copolymer polyester that is at least about 100 degrees lower than the melting/bonding temperature of the core 18. (Col. 5, lines 18-30)

The reference also teaches the inclusion of particles of a thermoplastic resin dispersed uniformly throughout the matrix. And also teaches the inclusion of particles of conductive material or other finely divided or powdered conductive materials. (Col. 5, lines 65-67; Col. 7, lines 24-34) The Examiner equates these materials to the claimed microspheres. With regards to the amount of particles of the thermoplastic resin, the reference teaches that the quantity directly affects the maximum obtainable rigidity. (Col. 6, lines 10-12) With regard to the melting point of the second synthetic fibers, it is noted that the reference teaches that during the curing of the product the sheath of the bicomponent fiber melts and forms bonds between the fibers 12 and 14. (Refer to Col. 6, lines 23-48) It is the Examiner's interpretation that such teaching directly implies that the melting point of the second synthetic fibers is significantly higher than that of the sheath of the bicomponent fibers.

The Examiner equates the glass fibers and the first (crimped) synthetic fibers to the presently claimed structural fibers, the crimped synthetic fibers further equated to the irregularly shaped fibers. The bi-component fibers meeting the claimed bi-component fibers of the present invention.

Although CHENOWETH et al. does not explicitly teach the claimed melting point of the irregularly shaped fibers being significantly higher than the outer polymer annulus it is reasonable to presume that this is inherent to materials taught by CHENOWETH et al. Support for said presumption is found in the use of like materials (i.e. among the materials disclosed for fibers 14 are aramids such as Kevlar® and Nomex®; these materials are heat and flame resistant

and do not have a defined melting point, instead they decompose or carbonize at temperatures between 800°F -900°F. Evidence that fibers 14 do not melt while the sheath of the bicomponent fibers has melted is in Figures 3-4). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property of having irregularly shaped fibers with a melting point significantly higher than the outer polymer annulus would obviously have been present one the CHENOWETH et al. product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection made above under 35 USC 102.

Claim Rejections - 35 USC § 103

3. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over CHENOWETH et al. as applied above, and further in view of DENTON et al. (US 5,840,637).

CHENOWETH et al. discloses the claimed invention except that it uses polyester in the sheath of the bicomponent fiber instead of polyethylene or polypropylene, DENTON et al. shows that these materials are equivalent structures known in the art. Therefore, because these materials were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute polyester for polyethylene or polypropylene. Refer to Col. 2, lines 28-50 of DENTON et al. that shows different sheath/core combinations suitable for substrates that include high modulus polymer filaments such as aramids and bicomponent fibers that produce contact points between the high modulus polymer filaments upon melting of the sheath. [Refer to Col. 3, lines 18-33].

Response to Arguments

4. Applicant's arguments filed September 22, 2006 have been fully considered but they are not persuasive.

a. Applicants argue that Chenoweth et al. is completely silent as to the melting point of the synthetic fibers 14 relative to that of the sheath 20 of the bicomponent fibers 16.

It is noted that the reference teaches the importance that there be a significant difference between the melting point of the core 18 and the melting temperature of the sheath 20 and furthermore that the melting temperature of the sheath 20 be the lower of the two values. For example, the core could exhibit a melting temperature of 485°F and the sheath 20, 285°F. [Refer to Col. 5, lines 18-51] Then the reference discloses the formation of bonds 28 formed by the melting of the sheath. These bonds 28 are formed wherever any of the first, mineral fibers 12 or second, homogeneous fibers 14 contact or are closely adjacent the third, bi-component synthetic fibers 16. [Refer to Col. 6, lines 23-48; Figures 3-4] It is noted in the figures that fibers 12 and 14 are not melted and the bonds are formed by only the melting of the sheath of the bicomponent fibers. It is the Examiner's position that while the reference does not disclose a particular melting point for the synthetic fibers 14, the Figures are evidence that their melting point would be higher than the melting point than the sheath of the bicomponent fibers. It is further noted that among the materials disclosed for fibers 14 are aramids such as Kevlar® and Nomex®; these materials are heat and flame resistant and do not have a defined melting point, instead they decompose or carbonize at temperatures between 800°F -900°F. Therefore, having irregularly shaped fibers having a melting point significantly higher

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than the outer polymer annulus would be recognized in the invention of CHENOWETH et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Norca L. Torres-Velazquez whose telephone number is 571-272-1484. The examiner can normally be reached on Monday-Thursday 8:00-5:00 pm and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Norca L. Torres-Velazquez
Primary Examiner
Art Unit 1771

December 7, 2006